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Norman et al.

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(54) **SECURITY DEVICE FOR ELECTRICAL CORD**

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(21) Appl. No.: **11/447,224**

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(51) **Int. Cl.**
G08B 13/14 (2006.01)

(52) **U.S. Cl.** **340/572.8**; 340/572.9; 439/346; 439/367

(58) **Field of Classification Search** 340/572.9, 340/572.8, 572.1, 652, 656; 70/57.1; 439/346, 439/367

See application file for complete search history.

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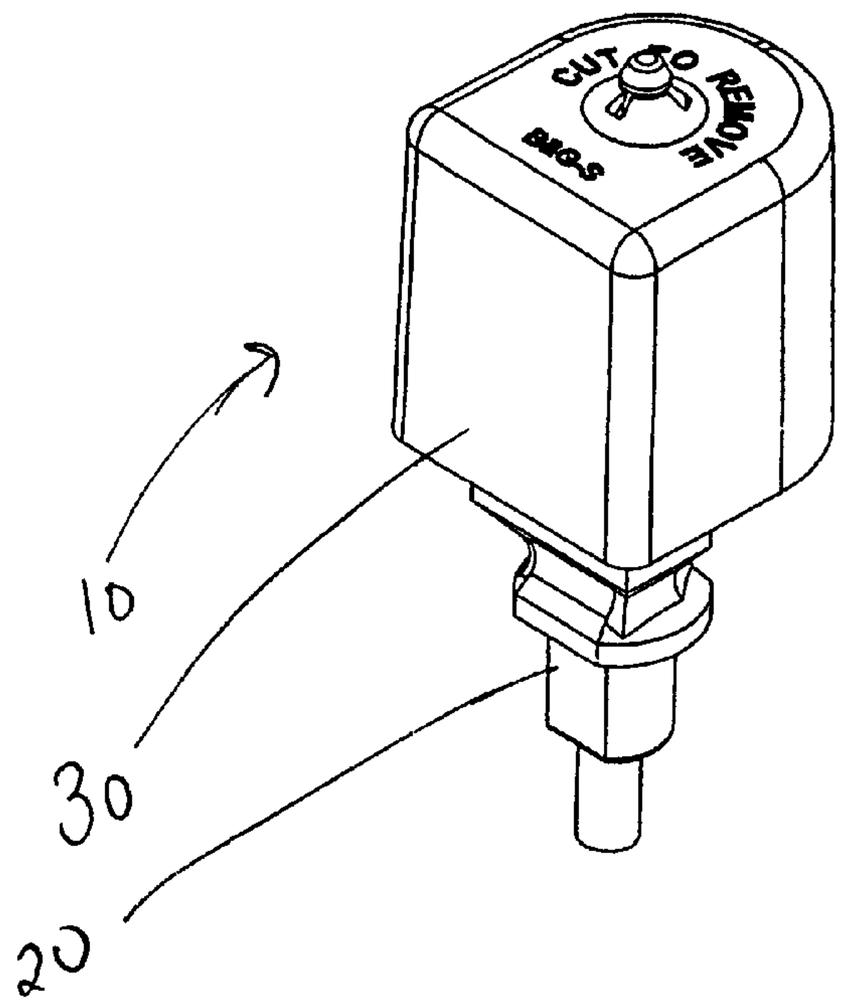
(57) **ABSTRACT**

The present invention provides a security device for attachment to an electrical cord. The device includes a housing assembly having an exterior housing and an interior housing. The interior housing having means to securely attach the plug inside the interior housing. The device also includes an exterior housing for inwardly receiving the interior housing and the attached plug. The interior housing snap locks into the exterior housing to provide a locking non-removable engagement therewith. Additionally, the housing has means to provide a tight engagement of the plug with the housing assembly.

15 Claims, 4 Drawing Sheets



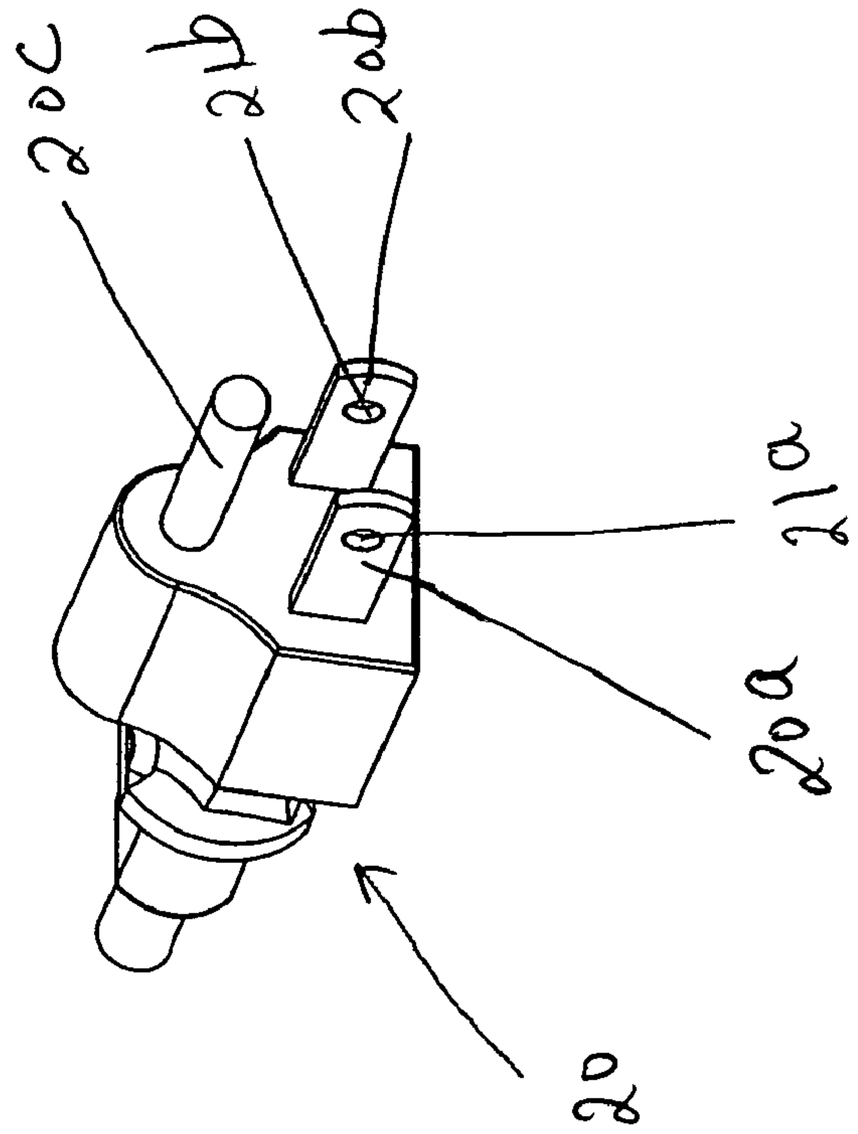


Fig 2

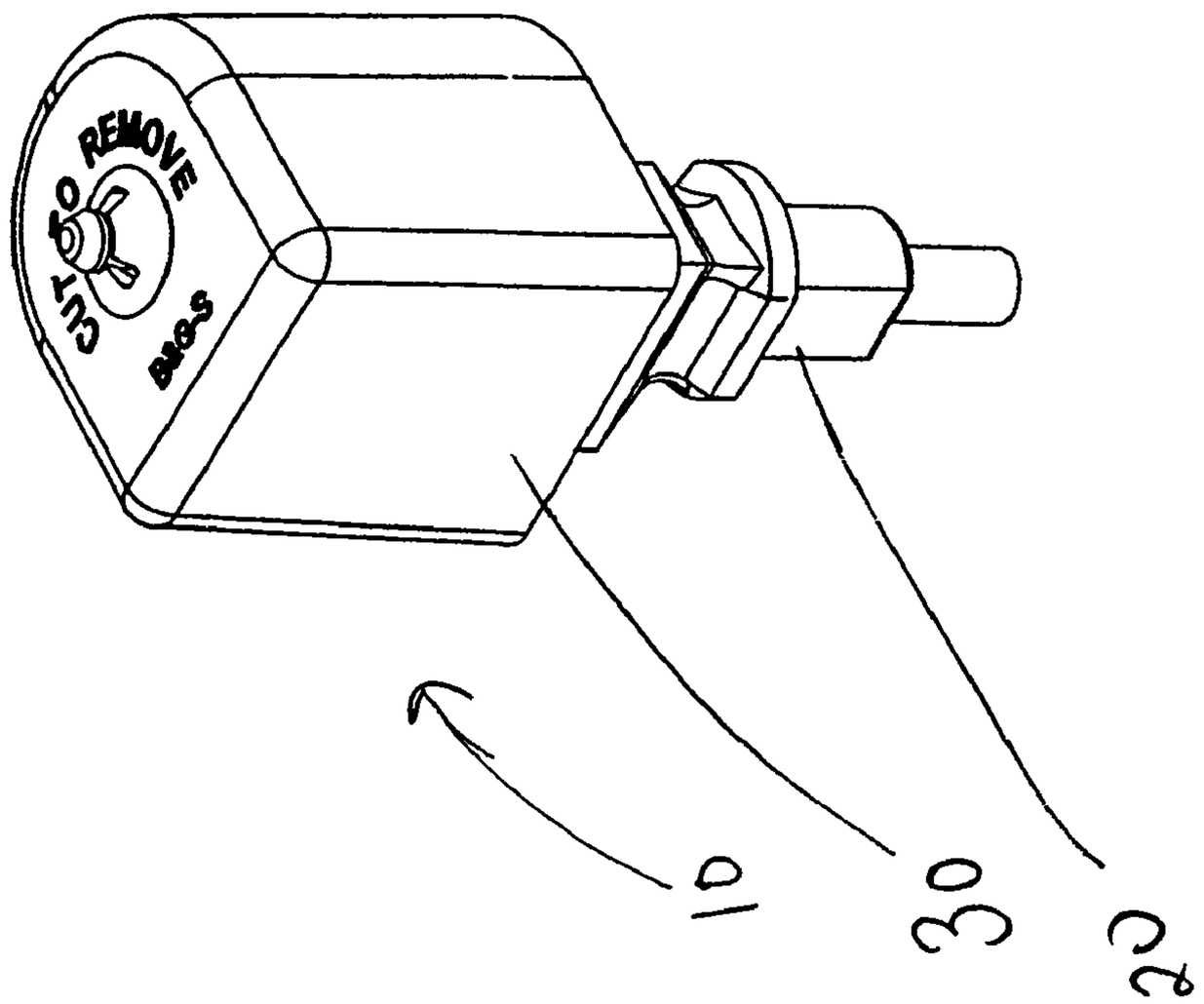


Fig 1

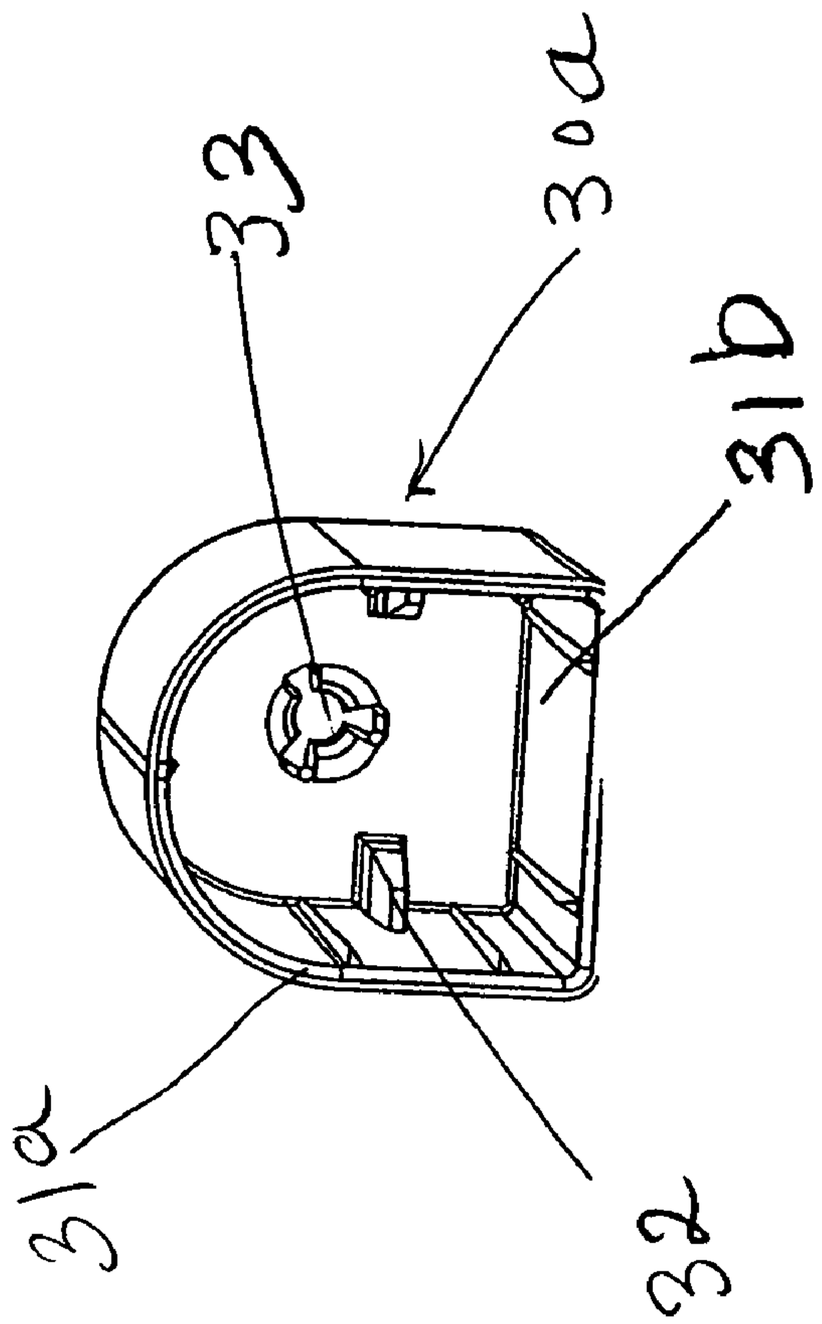


FIG 3

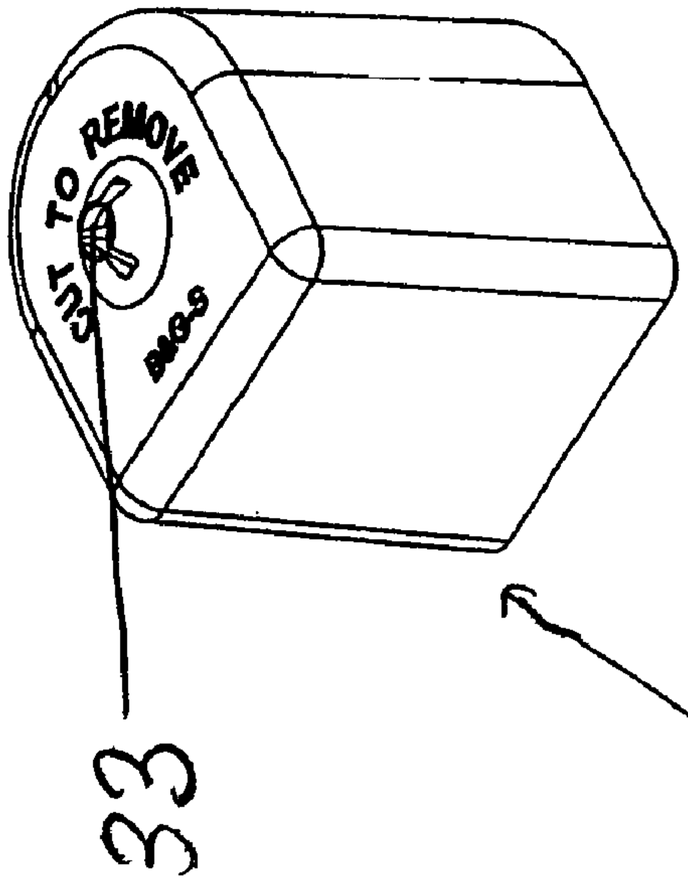


FIG 3A

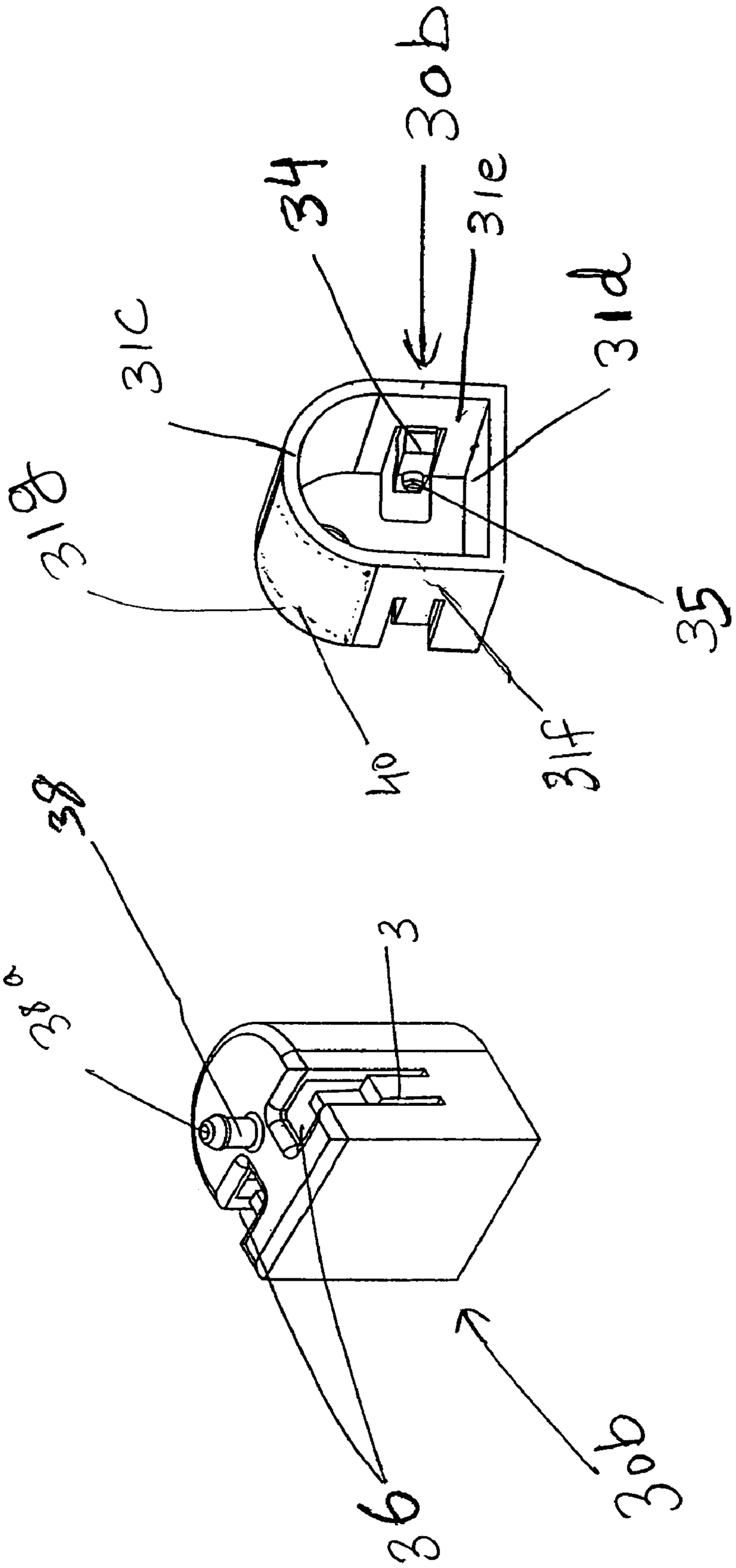


FIG 3D

FIG 3C

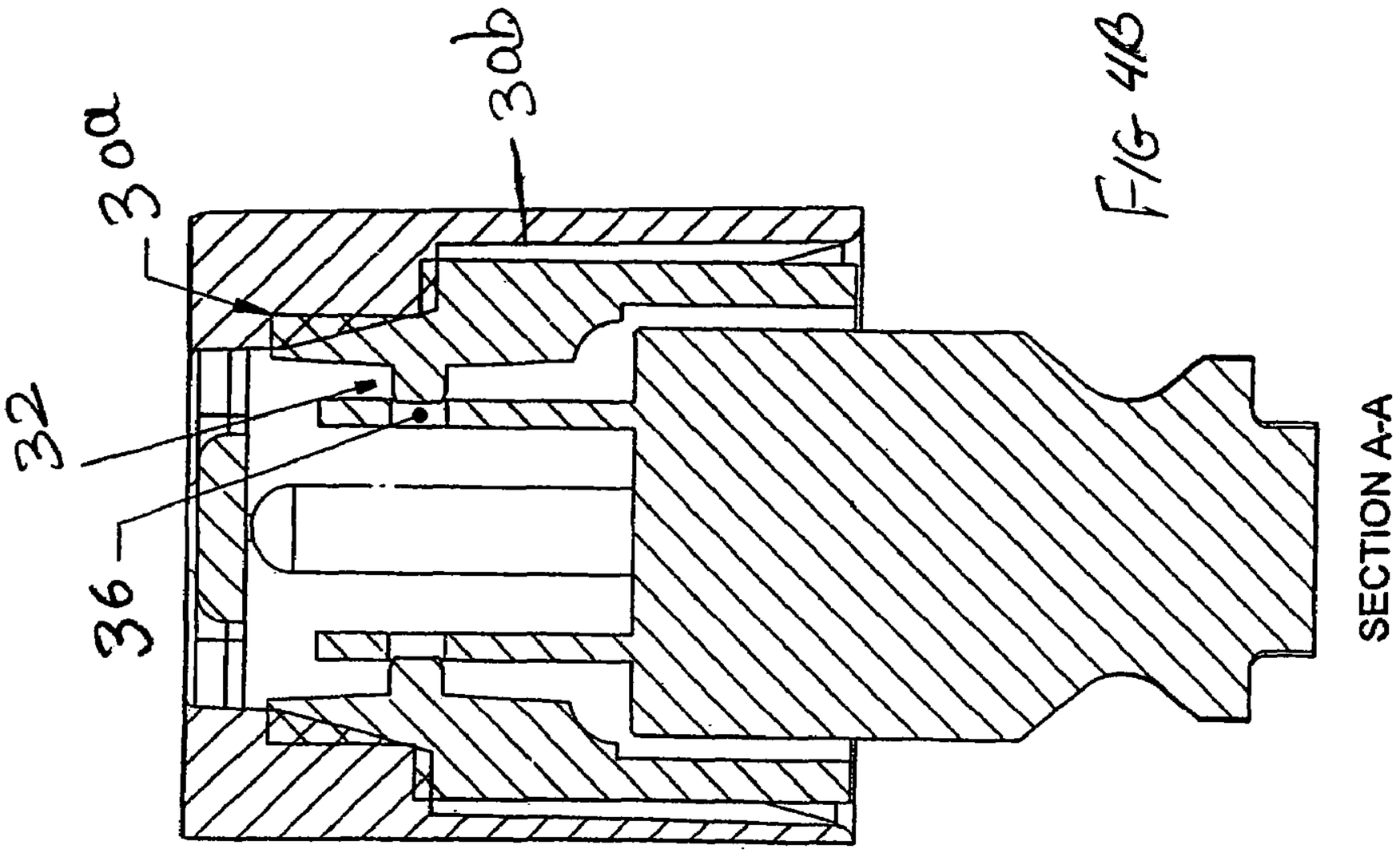


FIG 4B

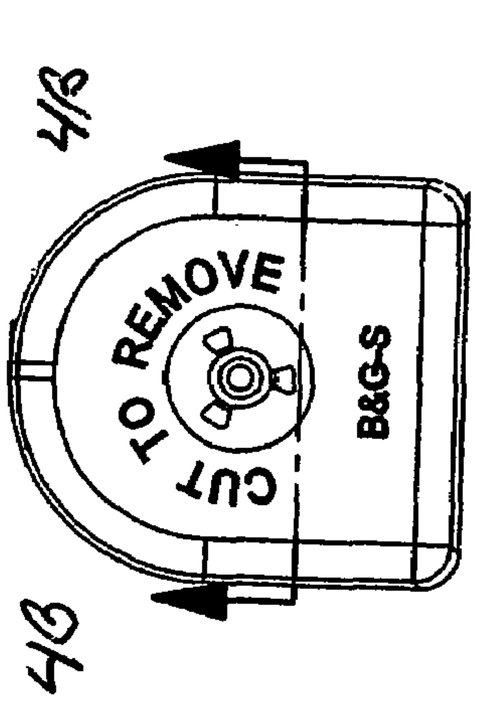


FIG 4A

SECURITY DEVICE FOR ELECTRICAL CORD

CROSS-REFERENCE TO RELATED APPLICATION

This application claims priority to U.S. Provisional Patent Application No. 60/688,181, filed on Jun. 7, 2005, which is incorporated herein by reference.

FIELD OF THE INVENTION

The present invention relates to a security device for electrical cord, more particularly to an electronic surveillance (EAS) security device securably attached to a plug of an electronic device.

BACKGROUND OF THE INVENTION

It is widely known to provide electronic surveillance (EAS) devices for theft deterrence. EAS devices may be placed on or attached to in various manners, to products which are susceptible to theft. Such products may include an electronic device or equipment having a means such as a plug to connect to a power supply. There has been an ongoing problem of securing these electronic devices from easy and quick theft. This problem is typically being solved by various locking arrangements. Many of these devices can be easily seen and removed thereby defeating the purpose of the device.

Therefore, a need exists to provide an anti-theft device that is securely locked to the electronic device without the consumer being aware that the device is being protected.

SUMMARY OF THE INVENTION

A security device for attachment to a plug of an electrical cord having a housing assembly. The housing assembly includes an interior housing for accommodating the plug. The interior housing includes an inwardly directed spring fingers. The assembly further includes an exterior housing for inwardly receiving the interior housing and the attached plug. The interior housing is non-removably engaged with the exterior housing. The exterior housing includes an internally directed ledges for forcing the spring fingers of the interior housing into locking engagement with the plug. The device additionally includes an EAS device supported within the assembly.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a preferred embodiment of the security device of the present invention with an electric cord.

FIG. **2** is a perspective view of a typical electrical cord.

FIGS. **3**A and **3**B are perspective views, respectively, of the outer and inner view of the interior housing.

FIGS. **3**C and **3**D are perspective views, respectively, of the outer and inner view of the exterior housing.

FIG. **4**A is a perspective view of the rear portion of the housing device.

FIG. **4**B is a cross-section plan view of the housing device taken along line **4**B-**4**B of FIG. **4**A.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to FIG. **1** of the present invention, there is shown a security device **10** attached to an electric cord plug with a power cord.

The device **10** includes a housing assembly **30** having an exterior housing and an interior housing. The device **10** is preferably shaped as a typical "mail box" with an open face and a cavity formed in the device **10**.

The cord plug **20** as shown in FIG. **2** typically contains three prongs **20***a*, **20***b* and **20***c* with two parallel prongs **20***a* and **20***b* as shown. The cord and plug are of conventional construction. The cord plug **20** is plugged into the cavity of the housing **30** as will be described in greater detail below.

FIGS. **3**A and **3**B show an exterior housing **30***a* with an outer and inner view respectively.

The exterior housing **30***a* is preferably made of plastic and is clear in color. The exterior housing **30***a* includes an open face **31***a* and a cavity **31***b* formed in the exterior housing and further sized and shaped to accommodate the interior housing **30***b* within its cavity **31***b*. The exterior housing **30***a* includes a pair of the oppositely directed, internally directed ledges **32** as can be clearly seen in the inner view FIG. **3***b* of the exterior housing **30***a*. The exterior housing **30***a* further includes an aperture **33** extending outwards at its back wall. The aperture **33** is sized and shaped to snap lock the interior housing **30***b* as is described in greater detail hereinbelow.

Now referring to FIGS. **3**C and **3**D, there is shown a perspective view of the interior housing **30***b* with an outer and inner view, respectively.

The interior housing **30***b* is also preferably made of plastic. The interior housing **30***b* is shaped and sized to fit into the exterior housing **30***a*. The interior housing **30***b* cavity also includes an open face **31***c* and a cavity **31***d* formed in the housing **30***b*. The interior housing **30***b* includes a pair of inwardly directed spring fingers **34** from the side walls **31***e* and **31***f* of interior housing **30***b* and resiliently pivotal extending therefrom. The spring fingers are engaged with the two parallel prongs **20***a* and **20***b* of the plug upon insertion. As seen clearly in the inner view of the interior housing FIG. **3**D, the spring finger **34** further includes inwardly directed pins **35**.

Certain typical plugs **20** as shown in FIG. **2** may preferably include indentations or apertures **21***a* and **21***b* on the parallel prongs **20***a* and **20***b* respectively. Upon insertion of the plug **20**, the spring fingers **34** engage with the parallel prongs, **20***a* and **20***b* and the pins **35** snap directly into the indentations **21***a* and **21***b* of the parallel prongs **20***a* and **20***b*, thereby providing a tight engagement between the interior housing **30***a* and the plug **20**.

Looking at the outer view FIG. **3**C of the interior housing **30***b*, there is shown a pair of openings **36** on the back wall sized and shaped to receive the ledges **32** of the exterior housing **30***a* upon insertion of the interior housing **30***b* into the exterior housing **30***a*.

Also shown in FIG. **3**C is a nib **38** extending outward from the back wall of the interior housing **30***b*. The extending nib **38** provides a tight engagement with the exterior housing **30***a* as will be described herein. The extending nib **38** includes an enlarged tip **38***a*. The extending nib **38** with its enlarged tip **38***a* is designed such that the tip **38** fits through the aperture **33** of the exterior housing **30***a* in an insertion direction. So, upon insertion of the interior housing **30***b* with attached plug **20** into the exterior housing **30***b*, the nib **38** snap locks into the aperture **33**, with only the tip portion **38***a* extending out of the aperture **33**. The walls of the aperture **33** are constructed to allow only one plug insertion of the tip therethrough. This

provides a locking non-removable engagement between the exterior **30***a* and the interior **30***b* housing.

In order to unlock the security device **10**, one would have to cut the enlarged tip **38***a* of the nib **38**. This would cause the interior housing **30***a* to fall out of the exterior housing **30***b*, unlocking the device **10** and allowing the plug **20** to be withdrawn. Thus, the security device **10** can only be removed by destroying it.

The interior housing **30***b* shown in FIGS. **3**C and **3**D is designed to accommodate a standard EAS device, which, as well known in the art, is used with an EAS detection system to detect unauthorized movement of any product containing the EAS. While an EAS device is shown, the housing **30***b* may also accommodate other devices such as a radio frequency identification (RFID) tag.

A standard EAS is a rectangular member having two sides with adhesive coated onto one side. The EAS is preferably made of paper or plastic. The EAS **40** of the present invention is adhesively secured to the upper curved surface **31***g* of the interior housing **30***b* as shown in FIG. **3***d*. While the EAS **40** is preferably secured to the upper curved surface **31***g* of the interior housing **30***a*, it may be attached anywhere within the housing assembly **30**.

FIG. **4**A shows a perspective view of the back wall of the housing assembly **30** of the security device **10**. A cross-section view taken along line **4**B-**4**B of FIG. **4**A is shown in FIG. **4**B to illustrate the tight engagement between the plug **20** and the housing **30**. Upon insertion of the interior housing **30***b* into the exterior housing **30***a*, the ledges **32** are pushed into the openings **36** and bear against the spring fingers **34** forcing the spring fingers into tight engagement with the plug **20**. This provides the spring fingers **34** to be in engagement and also prevents removal of the housing device **30** from the plug **20**.

Thus, the present invention provides an EAS security device which can be attached to a plug. The device can not be easily removed without destroying it, thereby indicating that the device has been tampered with and the security device removed.

Various changes to the foregoing described and shown structures would now be evident to those skilled in the art. Accordingly, the particularly disclosed scope of the invention is set forth in the following claims.

What is claimed:

1. A security device for attachment to a plug of an electrical cord, said device comprising:

a housing assembly including:

an interior housing for accommodating said plug wherein said interior housing includes an inwardly directed spring fingers;

an exterior housing for inwardly receiving said interior housing, said exterior housing including an aperture for non-removably receiving said interior housing in said exterior housing;

said exterior housing having internally directed ledges for forcing said spring fingers into locking engagement with said plug; and

an EAS device supported within said housing assembly.

2. The security device of claim **1** wherein said interior housing includes an outwardly extending nib which snap locks into the aperture of the exterior housing.

3. The security device of claim **1** wherein said ledges of the exterior housing bear against said spring fingers of the interior housing.

4. The security device of claim **1** wherein said fingers include pins for secure engagement with indentation of the plug.

5. The security device of claim **1** wherein said EAS device of claim **1** is adhesively secured to an upper surface of the interior housing.

6. A security device for attachment to a plug of an electrical cord, said device comprising:

a housing assembly including:

an interior housing for accommodating said plug, said interior housing including an inwardly directed spring fingers for engagement with said plug;

an exterior housing for inwardly receiving said interior housing, said exterior housing having internally directed ledges for forcing said spring fingers into locking engagement with said plug;

means for non-removably coupling said exterior housing with said interior housing; and

an EAS device supported within said housing assembly.

7. The security device of claim **6** wherein said exterior housing includes a nib receiving aperture.

8. The security device of claim **6** wherein said interior housing includes an outwardly extending nib to snap lock into said aperture.

9. The security device of claim **6** wherein said ledges of the exterior housing bear against the spring fingers of the interior housing to provide a tight engagement therewith.

10. The security device of claim **6** wherein said EAS device of claim **1** is adhesively secured to an upper surface of the interior housing.

11. A security device for attachment to a plug of an electrical cord, said device comprising:

an interior housing for accommodating said plug, said interior housing having an outwardly extending nib;

an exterior housing for inwardly receiving said interior housing, said exterior housing having a nib receiving aperture for non-removably receiving said interior housing to said exterior housing to form a housing structure;

means for locking the housing structure to said plug upon engagement therewith; and

an EAS device supported within said housing assembly.

12. The security device of claim **11**, wherein said outwardly extending nib of the interior housing snap lock into said aperture of the exterior housing for tight engagement therewith.

13. The security device of claim **11**, wherein said exterior housing include an internally directed ledges for forcing said spring fingers into locking engagement with said plug.

14. The security device of claim **11** wherein said ledges of the exterior housing bear against said spring fingers of the interior housing.

15. The security device of claim **11** wherein said EAS device of claim **1** is adhesively secured to an upper surface of the interior housing.

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